

Claims

1. An electronic package comprising:
  - a circuit board having a substrate and circuitry;
  - a surface mount device having a contact terminal;
  - a mounting pad formed on the circuit board;
  - a plurality of vias extending into the circuit board and the mounting pad, each of the vias having an opening extending therein; and
  - a solder joint connecting the contact terminal of the surface mount device to the mounting pad on the circuit board, wherein the solder joint extends at least partially into the opening in each of the plurality of vias to support the arrangement of the surface mount device on the circuit board.
2. The package as defined in claim 1, wherein the plurality of vias comprise a plurality of electrically conductive vias electrically coupled to the circuitry on the circuit board.
3. The package as defined in claim 2, wherein each of the plurality of electrically conductive vias comprises a plated copper wall.
4. The package as defined in claim 1, wherein the circuit board comprises an organic substrate.
5. The package as defined in claim 1, wherein the circuit board comprises a printed circuit board.
6. The package as defined in claim 1, wherein the solder joint comprises solder reflowed at an elevated temperature to at least partially fill each of the plurality of vias to form a column within each of the vias.
7. The package as defined in claim 1, wherein the package includes first and second mounting pads each having a plurality of vias

extending into the circuit board and each containing a column of the solder joint for supporting the surface mount device on the circuit board.

8. The package as defined in claim 1, wherein the surface mount device comprises an electronic device having electrical circuitry.

9. The package as defined in claim 1, wherein each of vias are formed by drilling an opening and plating the opening with an electrically conductive material.

10. The package as defined in claim 1, wherein the package has an aspect ratio of circuit board thickness to diameter of the opening of each of the vias of no greater than about 5.0.

11. An electronic package comprising:  
a circuit board having a substrate and circuitry;  
a surface mount device having a contact terminal;  
a mounting pad formed on the circuit board;  
a via extending into the circuit board and extending through the mounting pad, said via having an opening extending therein; and  
a solder joint connecting the contact terminal of the surface mount device to the mounting pad on the circuit board, wherein the solder joint extends at least partially into the opening in the via to form a solder column that supports the arrangement of the surface mount device on the circuit board.

12. The package as defined in claim 11, wherein the via comprises an electrically conductive via electrically coupled to the circuitry on the circuit board.

13. The package as defined in claim 12, wherein the via comprises a plated copper wall.

14. The package as defined in claim 11, wherein the circuit board comprises an organic substrate.

15. The package as defined in claim 11, wherein the circuit board comprises a printed circuit board.

16. The package as defined in claim 11, wherein the solder joint comprises solder reflowed at an elevated temperature to at least partially fill the via to form a column within the via.

17. The package as defined in claim 11, wherein the via comprises first and second vias extending through the mounting pad and into the circuit board, wherein the solder joint has a column extending at least partially into each of the first and second vias to further support the arrangement of the surface mount device on the circuit board.

18. The package as defined in claim 11, wherein the package includes first and second mounting pads, each having a via extending into there through and the circuit board and each receiving solder for supporting the surface mount device on the circuit board.

19. The package as defined in claim 11, wherein the via is formed by drilling an opening into the circuit board and plating an electrically conductive material in the opening.

20. The package as defined in claim 11, wherein the surface mount device comprises an electronic device having electrical circuitry.

21. The package as defined in claim 11, wherein the package has an aspect ratio of circuit board thickness to diameter of the opening of each of the vias of no greater than about 5.0.